

**IN THE CLAIMS:**

1-25. (Cancelled)

26. (new) A method for testing a safety system for closing or opening a pipe of a process system to bring the process system to a safe operating state in the event of an incident, said safety system comprising

a control valve,

a pneumatic actuator operating the control valve via a movable coupling element,

a control unit coupled to the actuator via a pneumatic connection, and

an incident signal line input to said control unit to cause said control unit and actuator to open or close said control valve in the event of said incident,

said method comprising the steps of:

providing a position controller connected by a test signal connection to said control unit;

providing a sensor which measures movement of said coupling element, and which provides a measurement value to said position controller;

to test operational capability of said safety system including said control unit, with the position controller generating a test signal and sending it via said signal connection to said control unit so that said control unit is operated to partially move said coupling element with said actuator; and

with said measurement value from said sensor determining whether the control unit and the pneumatic actuator have correctly operated to partially move said control valve.

27. (new) A method of claim 26 wherein the control unit comprises a solenoid valve which partially moves said coupling element via said actuator when said test signal is sent to said control unit.

28. (new) A method of claim 27 wherein the incident signal line input is an electronic input, said test signal connection is an electronic connection, and said test signal is an electronic test signal.

29. (new) A method of claim 28 wherein said electronic test signal connection connects to said incident electronic signal line input of said control unit.

30. (new) A method of claim 29 including providing a switch device in said signal line and using said switch device to interrupt said signal line indicating a normal operating state to said control unit when said test signal is generated and sent to said incident electronic signal line input

31. (new) A method of claim 26 wherein said position controller generates said test signal automatically with a generator.

32. (new) A method of claim 31 wherein a suppression device is provided operated by an operating personnel to prevent generation of said automatically generated test signal.

33. (new) A method of claim 26 wherein said position controller has a signal connection between the position controller and said control unit to move the control valve without operating the valve of the control unit.

34. (new) A method of claim 26 wherein said measurement sensor comprises a movement sensor.

35. (new) A method of claim 26 wherein said measurement sensor comprises a sound sensor.

36. (new) A method of claim 26 wherein said position controller comprises a storage device to store the measurement value obtained from said sensor.

37. (new) A method of claim 26 wherein said sensor measurement value is evaluated to obtain information about at least one of time up to a beginning of movement, acceleration, or speed of movement of said control valve.

38 (new) A method of claim 26 wherein said control unit has a valve and said sensor measurement value is used to analyze operational capability of the control unit with the valve and the pneumatic actuator.

39. (new) A system, comprising:

a safety system for closing or opening a pipe of a process system to bring a process system to a safe operating state in the event of an incident, said safety system comprising

a control valve,

a pneumatic actuator operating the control valve via a movable coupling element,

a control unit coupled to the actuator via a pneumatic connection, and

an incident signal line input to said control unit to cause said control unit and actuator to open or close said control valve in the event of said incident; and

a testing system for testing operation of said safety system, comprising

a position controller connected by a test signal connection to said incident signal line input of said control unit,

a sensor which measures movement of said coupling element and which provides a measurement value to said position controller,

a position controller which generates a test signal to test operational capability of said safety system including said control unit and which has a test signal connection to said control unit by which said test signal is sent to operate said control unit to partially move said coupling element via said actuator; and  
said position controller determining with said measurement value from said sensor whether the control unit and the pneumatic actuator have correctly operated said control valve.

40. (new) A system of claim 39 wherein the control unit comprises a solenoid valve which partially moves said coupling element via said actuator when said test signal is sent to said control unit.

41. (new) A system of claim 40 wherein the incident signal line input is an electronic input, said test signal connection is an electronic connection, and said test signal is an electronic test signal.

42. (new) A system of claim 41 wherein said electronic test signal connection connects to said incident electronic signal line input of said control unit.

43. (new) A method of claim 42 including a switch device in said signal line to interrupt said signal line indicating a normal operating state of said control unit when said test signal is generated on said test signal connection and sent to said incident electronic signal input of said control unit.

44. (new) A system of claim 39 wherein said position control has a generator which generates said test signal automatically.

45. (new) A system of claim 44 wherein a suppression device operable by an operating personnel prevents generation of said automatically generated test signal.

46. (new) A system of claim 39 wherein said position controller has a signal connection between the position controller and said control unit to move the control valve without operating the valve of the control unit.

47. (new) A system of claim 39 wherein said measurement sensor comprises a movement sensor.

48. (new) A system of claim 39 wherein said measurement sensor comprises a sound sensor.

49. (new) A system of claim 39 wherein said position controller comprises a storage device to store the measurement value obtained from said sensor.

50. (new) A system of claim 39 wherein said position controller evaluates said sensor measurement value to obtain information about at least one of time up to or beginning of movement, acceleration, or speed of movement of said control valve.

51. (new) A system of claim 39 wherein said position controller uses said sensor measurement value to analyze operational capability of the control unit with the valve and the pneumatic actuator.

52. (new) A testing system for testing operation of a safety system for closing or opening a pipe of a process system to bring a process system to a safe operating state in the event of an incident, said safety system comprising

a control valve,

a pneumatic actuator operating the control valve via a movable coupling element,

a control unit coupled to the actuator via a pneumatic connection, and

an incident signal line input to said control unit to cause said control unit and actuator to open or close said control valve in the event of said incident,

said testing system comprising:

- a position controller connected by a test signal connection to said incident signal line input of said control unit;

- a sensor which measures movement of said coupling element and which provides a measurement value to said position controller;

- a position controller which generates a test signal to test operational capability of said safety system including said control unit and which has a test signal connection to said control unit by which said test signal is sent to operate said control unit to partially move said coupling element via said actuator; and

- said position controller determining with said measurement value from said sensor whether the control unit and the pneumatic actuator have correctly operated said control valve.

53. (new) A method to test operating safety of a process control device designed to close or open a pipe of the process system in the event of an incident, said process control device comprising a process valve and a pneumatic actuator for driving the process valve, a position controller and a safety circuit, a position controller being connected to a measurement device, the pneumatic actuator having a pneumatic input that is directly coupled to a pneumatic output of the solenoid valve that controls the pneumatic actuator, the solenoid valve having an electrical input that is connected to the position controller for exchange of control signals such that the pneumatic actuator can be operated by way of the solenoid valve to move the process valve and the process valve can be moved from an initial condition to a final condition in the event of an incident by the pneumatic actuator which is controlled by

the solenoid valve, and a test cycle for the process control device, said method comprising the steps of:

generating a control signal for partial movement of the process valve aided by the position controller;

transferring the control signal from the position controller to the solenoid valve via the electrical input of the solenoid valve;

directly controlling the pneumatic actuator via its pneumatic input with the solenoid valve depending on the control signal provided at the electrical input of the solenoid valve to operate the pneumatic actuator for the partial movement of the process valve from the initial condition;

directing, via said measurement device, measurement signals that indicate the partial movement of the process valve from the initial condition;

returning the process valve to the initial condition; and

also performing the additional steps of

switching a switch device connected to the solenoid valve and thereby interrupting a control signal of a signal line provided to the solenoid valve with a test control signal to the solenoid valve,

generating the test control signal by the position controller so that the pneumatic output of the solenoid valve directs the pneumatic actuator to partially move the control element,

detecting the partial movement of the control element of the measurement device to determine if the position controller, the solenoid valve, the pneumatic actuator, and the control element have properly moved in response to the test control signal, and

wherein all elements involved in operating the actuator with the control signal of the signal line to the solenoid valve are also involved in operating the actuator with the test control signal to the solenoid valve.